

Notice of Allowability

Application No.

10/784,987

Applicant(s)

STEINER ET AL.

Examiner

Art Unit

K. Feggins

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2/25/04 & 10/21/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The primary reason for allowance of claims 1-5 is the inclusion of a method steps of converting a continuous stream of liquid that includes simultaneously with the first cyclical perturbation, imposing on the stream of liquid at least one further cyclical perturbation to create a net cyclical perturbation, the at least one further cyclical perturbation having frequency f_k , wherein $f_1/f_k = M/N$, M and N are integers; M is not an integer multiple of N; and N is not an integer multiple of M. It is these steps found in the claim, as it is claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for allowance of claims 6-17 is the inclusion of a method steps of converting a continuous stream of liquid that includes simultaneously with the first cyclical perturbation, imposing on each member of the first plurality at least one further cyclical perturbation to create a net cyclical perturbation, the at least one further cyclical perturbation having frequency f_k , wherein $f_1/f_k = M/N$, M and N are integers; M is not an integer multiple of N; and N is not an integer multiple of M. It is these steps found in the claim, as it is claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for allowance of claims 18-22 is the inclusion of a method steps of converting a continuous stream of liquid that includes simultaneously with the first cyclical perturbation, imposing on the stream of liquid a second cyclical perturbation

Art Unit: 2861

having frequency f_2 , to create a net cyclical perturbation, wherein $f_1/f_2 = M/N$, M and N are integers; M is not an integer multiple of N; and N is not an integer multiple of M. It is these steps found in the claim, as it is claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for allowance of claims 23-34 is the inclusion of a method steps of converting a plurality of continuous streams of liquid that includes simultaneously with the first cyclical perturbation, imposing on each member of the first plurality a second cyclical perturbation having frequency f_2 , to create a net cyclical perturbation, wherein $f_1/f_2 = M/N$, M and N are integers; M is not an integer multiple of N; and N is not an integer multiple of M. It is these steps found in the claim, as it is claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Taub (US 4,047,183) discloses a method and apparatus for controlling the formation and shape of droplets in an ink jet stream. Fan et al. (US 4070679) disclose a method and apparatus for recording information on a recording surface by the use of magnetic ink. Sachs et al. (US 6,070,973) disclose a non-resonant and decoupled droplet generator. Pham-Van-Diep et al. (US 6,224,180 B1) disclose a continuous jetting of liquid droplet for deposit on a substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

Art Unit: 2861

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication With The USPTO

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 571-272-2254. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talbott Dave can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Feggins 2/06
R. FEGGINS
PRIMARY EXAMINER